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10/828,839	04/21/2004	Nikolaos Koudas	ATT 2002-0457	5311

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EXAMINER
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ART UNIT	PAPER NUMBER
2167	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>01 December 2006</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14,17,19 and 21-24* is/are pending in the application.

    4a) Of the above claim(s) *15,16,18 and 20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14,17,19 and 21-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1.   Claims 15-16,18,20 are withdrawn from further consideration pursuant to 37 CFR

1.142(b) as being drawn to a nonelected invention, there being no allowable generic or

linking claim. Election was made **without** traverse in the reply filed on December 1,

2006.

2.   New claims 21-24 have been added.

3.   Claims 15-16,18,20 have been canceled.

4.   Claims 1-14, 17, 19, 21-24 are currently pending.

Claim Rejections - 35 USC § 101

5.   35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
conditions and requirements of this title.

the claimed invention is directed to non-statutory subject matter.

Claims 1-14, 17,19,21-24 are rejected under 35 U.S.C. 101 because the claimed

invention is directed to non-statutory subject matter.

Claim 1 recites "preprocessing a database having a relation to produce an index",

"receiving a query having aggregation constraints", and "applying said index to look up

a result in response to said query having aggregation constraints". The claim does not

provide a tangible result such as displaying the result to the user.

Claim 17 recites "means for preprocessing a database having a relation to produce an

index", "means for receiving a query having aggregation constraints"; and   "

means for applying said index to look up a result in response to said query

having aggregation constraints". The claim does not provide a tangible result such as a

means for displaying the result to the user.

Claim 19 recites "...instructions which, when executed by a processor, cause the

processor to perform the steps comprising of: preprocessing a database having a

relation to produce an index, receiving a query having aggregation constraints;

and applying said index to look up a result in response to said query having

aggregation constraints. The claim does not provide a tangible result such as a means

for displaying the result to the user.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed
publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-5, 11-14,17,19, 21-24 are rejected under 35 U.S.C. 102(a) as being

anticipated by US 2004/0003004 A1 issued to Surajit Chaudhuri et al.

As per claim 1 Chaudhuri anticipates:

preprocessing a database having a relation to produce an index (see paragraph 42,

lines 1-4, index is built over relations);

receiving a query having aggregation constraint and applying said index to look up a

result in response to said query having aggregation constraints (paragraph 25,

database server receives and processes queries to retrieve , delete and update using

SQL which includes aggregation constraints and paragraph 26, lines 2-4, as

possessing the query using an index).

  As per claim 2 same as claim arguments above and Chaudhuri anticipates:

wherein said query having aggregation constraints includes an n-dimensional

vector of constants associated with said aggregation constraints (paragraph 50, as a

given query and n-dimensional vector).

  As per claim 3 same as claim arguments above and Chaudhuri anticipates:

wherein said index is produced by evaluating solution to a knapsack problem on said

relation for a select number of vectors of constants associated with said aggregation

constraints (paragraph 47, knapsack algorithm).

  As per claim 4 same as claim arguments above and Chaudhuri anticipates:

... one or more answers that are considered to be said result within a predefined

approximation factor (paragraph 54, lines 7-9,as the solution for every query has an

approximation guarantee).

As per claim 5 same as claim arguments above and Chaudhuri anticipates: wherein said index contains pointers pointing to a plurality of partitions, where if said query falls within one of said partition, then each partition is representative of a set of answers corresponding to said result (paragraph 9, as candidate data structures equate to the index containing pointers to partitions).

As per claim 11 same as claim arguments above and Chaudhuri anticipates: wherein said result is guaranteed to be accurate within a predefined approximation factor(paragraph 54, lines 7-9,as the solution for every query has an approximation guarantee).

As per claim 12 same as claim arguments above and Chaudhuri anticipates: wherein said predefined approximation factor can be selectively changed (paragraph 54, lines 7-9, an approximation guarantee includes an approximation factor).

As per claim 13 same as claim arguments above and Chaudhuri anticipates: wherein said result is representative of one of more answers that are deemed to be dominant (paragraph 26, lines 1-4, processing a query against a index to access data).

As per claim 14 same as claim arguments above and Chaudhuri anticipates: wherein said result is representative of one of more answers that are deemed to be dominant within an approximation factor(paragraph 54, lines 7-9, an approximation guarantee includes an approximation factor).

As per independent claim 17 Chaudhuri anticipates:

means for preprocessing a database having a relation to produce an

index(see paragraph 42, lines 1-4, index is built over relations);

means for receiving a query having aggregation constraints and means for applying

said index to look up a result in response to said query having aggregation

constraints(paragraph 25, database server receives and processes queries to retrieve ,

delete and update using SQL which includes aggregation constraints and paragraph

26, lines 2-4, as possessing the query using an index).

As per independent claim 19 Chaudhuri anticipates:

preprocessing a database having a relation to produce an index(see

paragraph 42, lines 1-4, index is built over relations);

receiving a query having aggregation constraints and applying said index to look up a

result in response to said query having aggregation constraints(paragraph 25,

database server receives and processes queries to retrieve , delete and update using

SQL which includes aggregation constraints and paragraph 26, lines 2-4, as

possessing the query using an index).

As per claim 21 same as claim arguments above and Chaudhuri anticipates:

wherein said query having aggregation constraints includes an n-dimensional

vector of constants associated with said aggregation constraints(paragraph 50, as a

given query and n-dimensional vector).

As per claim 22 same as claim arguments above and Chaudhuri anticipates: wherein said index is produced by evaluating solution to a knapsack problem on said relation for a select number of vectors of constants associated with said aggregation constraints(paragraph 47, knapsack algorithm).

As per claim 23 same as claim arguments above and Chaudhuri anticipates: wherein said index contains pointers pointing to one or more answers that are considered to be said result within a predefined approximation factor(paragraph 54, lines 7-9,as the solution for every query has an approximation guarantee).

As per claim 24 same as claim arguments above and Chaudhuri anticipates: wherein said index contains pointers pointing to a plurality of partitions, where if said query falls within one of said partition, then each partition is representative of a set of answers corresponding to said result(paragraph 9, as candidate data structures equate to the index containing pointers to partitions).

7.　　Claims 6-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Contact Information

8.   Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Susan Rayyan whose telephone number is (571) 272-
1675. The examiner can normally be reached M-F: 8am - 4:30pm.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone
number for the organization where this application or proceeding is assigned is
703-872-9306.

        Information regarding the status of an application may be obtained from
the Patent Application Information Retrieval (PAIR) system. Status information for
published applications may be obtained from either Private PAIR or Public PAIR.
Status information for unpublished applications is available through Private PAIR
only. For more information about the PAIR system, see http://pair-
direct.uspto.gov. Should you have questions on access to the Private PAIR
system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Susan Rayyan

January 6,2007

JOHN COTTINGHAM
SUPERVISORY PATENT EXAMINER
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